

### REMARKS

Claims 8-11 and 13 have been amended. Claims 1-13 are pending in the case. Further examination and reconsideration of pending claims 1-13 are hereby respectfully requested.

#### Section 103(a) Rejections

Claims 1-2 and 5-11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,420,864 to Abraham et al. (hereinafter "Abraham") in view of U.S. Patent No. 6,020,957 to Rosengaus et al. (hereinafter "Rosengaus"). Claims 3, 4, 12, and 13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Abraham in view of Rosengaus and further in view of U.S. Patent No. 6,591,162 to Martin (hereinafter "Martin"). As will be set forth in more detail below, the § 103 rejections of claims 1-13 are respectfully traversed.

To establish *prima facie* obviousness of a claimed invention, all claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974), MPBP 2143.03. Obviousness cannot be established by combining or modifying the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion or incentive to do so. *In re Bond*, 910 F. 2d 81, 834, 15 USPQ2d 1566, 1568 (Fed. Cir. 1990). The cited art does not teach or suggest all limitations of the currently pending claims, some distinctive limitations of which are set forth in more detail below.

The cited art does not teach or suggest a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers. Independent claim 7 recites, in part: "a) a semiconductor fabrication tool, for processing semiconductor wafers; and, b) a pod, interfaced to said tool at a load port, wherein said pod includes a mechanism for inspecting or measuring said wafers." Independent claim 1 and amended independent claims 8-11 recite similar limitations. Support for the amendments to claims 8-11 can be found in the originally filed Specification, for example, on page 4, lines 3-13.

Abraham discloses a modular substrate measurement system. However, Abraham does not teach a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers. The Office Action states that "Abraham however does not specifically apply the system to a wafer fabrication tool, or teach moving wafers between the process chamber and the

measurement chamber." (Office Action -- page 3). The Examiner proposes combining Rosengaus with Abraham to overcome these deficiencies in the teachings of Abraham.

Rosengaus discloses a system and method for inspecting semiconductor wafers. However, Rosengaus, like Abraham, does not teach a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers. For instance, Rosengaus states that "the multi-stage integrated circuit manufacturing system includes a cooling station at which the modular optical inspection system is located." (Rosengaus -- col. 3, lines 1-3). In addition, Rosengaus states that "the modular optical inspection system may be located above a window of one of the manufacturing tools (e.g., a cooling stage)." (Rosengaus -- col. 3, lines 6-9). Rosengaus further states that "the inspection system 10 is mounted to one of the outer facets of polygon 303 (either a primary or secondary cluster port) and is also accessible to central handling robot 315 for delivery of the wafers to the inspection system 10. The inspection system can alternatively be incorporated within the polygon 303 and accessible to central handling robot 315, thus not utilizing an outer facet of the polygon." (Rosengaus -- col. 16, lines 32-38). Therefore, although Rosengaus discloses that an inspection system may be coupled to a processing tool, Rosengaus does not disclose that the inspection system is interfaced to a semiconductor fabrication tool at a load port. Consequently, Rosengaus does not teach a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers, as recited in claims 1 and 7-11.

The combination of Abraham and Rosengaus also does not suggest or provide motivation for a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers. For example, the cited art appears to teach away from the claimed pod. In particular, Abraham states that "Due to the physical separation of the functionality of process tools and measurement tools, the delay times in both the process tools and the measurement tools may be reduced since their respective cycle times are no longer dependent on each other." (Abraham -- col. 2, lines 11-15). Therefore, Abraham appears to teach away from incorporating the measurement tools of Abraham into a processing tool such as that taught by Rosengaus since as taught by Abraham such a combination would increase the delay times in the process tools and the measurement tools. A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984). MPEP 2141.02.

Rosengaus states that "To avoid difficulties associated with introducing the inspection system into a vacuum environment associated with cluster tools and other integrated circuit manufacturing systems, the modular optical inspection system may be located above a window of one of the manufacturing tools (e.g., a cooling stage)." (Rosengaus -- col. 3, lines 3-9). Rosengaus also states that "Because it may, in some cases, be difficult to integrate an inspection tool of this invention in the interior of a third-party cluster tool or phototrack tool, a preferred embodiment of this invention provides an inspection tool on the exterior of a batch tool. In this case, the inspection tool need not be introduced into the vacuum environment of the tool's interior." (Rosengaus -- col. 16, lines 41-47). Therefore, Rosengaus teaches that inspection tools are preferably not introduced into the vacuum environment of processing tools.

However, the measurement chamber taught by Abraham would not only have to be introduced into the vacuum environment of a processing tool, but the flexible configuration and replacement of the measurement chambers taught by Abraham would necessarily disrupt the environment of the processing tool's interior. For example, as stated by Abraham, "The present invention provides a substrate measurement system comprising...at least one substrate container interface with a standardised interface and arranged to receive a measurement chamber comprising a measurement instrument." (Abraham -- col. 1, lines 38-44). Abraham also states that "Because of the standardisation of the measurement chamber, the modular substrate measurement system can easily be configured with different types of measurement instruments for a certain application by a simple replacement of one measurement chamber by another chamber." (Abraham -- col. 1, lines 48-52). As is known to one of ordinary skill in the art, interruption or alteration of the environment in the interior of a processing tool can have disastrous effects on a semiconductor fabrication process such as contamination of the processing tool, contamination of wafers being processed in the processing tool, process delays caused by re-establishing or re-stabilizing the environment within the processing tool that would be necessary after such replacement of a measurement chamber, all of which can result in lower device yield and throughput, which in turn result in lower profits. Therefore, the prior art teaches away from the combination suggested in the Office Action.

Since the prior art appears to teach away from the combination of Abraham and Rosengaus suggested in the Office Action, the prior art cannot reasonably suggest the desirability of the combination. Therefore, the combination of Abraham and Rosengaus suggested in the Office Action is not obvious. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990). MPEP 2143.01.

Martin cannot be combined with Abraham and/or Rosengaus to overcome deficiencies therein. For example, Martin discloses a smart load port with integrated carrier monitoring and a fab-wide carrier management system. However, Martin does not teach, suggest, or provide motivation for a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers. In particular, Martin does not teach or suggest inspecting or measuring a semiconductor wafer whatsoever. As such, Martin cannot be combined with Abraham and/or Rosengaus to overcome deficiencies therein.

For at least the reasons set forth above, none of the cited art, either individually or in any combination thereof, teaches, suggests, or provides motivation for a pod that is interfaced to a semiconductor fabrication tool at a load port and that includes a mechanism for inspecting or measuring wafers, as recited in claims 1 and 7-11. Consequently, the cited art does not teach or suggest all limitations of claims 1 and 7-11.

For at least the reasons set forth above, the Examiner has not established a *prima facie* case of obviousness. First, as set forth in detail above, there is no suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify or combine the reference teachings as suggested in the Office Action. Second, since the cited art does not teach or suggest all limitations of the present claims, there can be no reasonable expectation of success since there is nothing at which to be successful. In addition, since no teaching or suggestion of all of the limitations of the present claims is found in the prior art, there can be no reasonable expectation of success found in the prior art. Finally, the prior art references do not teach or suggest all of the claim limitations. In particular, for at least the reasons set forth above, no teaching or suggestion to combine the prior art references as suggested in the Office Action can be found in the prior art. Consequently, none of the three basic criteria that are required to establish a *prima facie* case of obviousness have been met.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not

based on applicant's disclosure. *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). MPEP 2142.

For at least the reasons stated above, claims 1 and 7-11, as well as claims dependent therefrom, are patentably distinct over the cited art. Accordingly, removal of the § 103 rejections of claims 1-13 is respectfully requested.

### CONCLUSION

This response constitutes a complete response to all issues raised in the Office Action mailed March 22, 2005. In view of the remarks presented herein, Applicants assert that pending claims 1-13 are in condition for allowance. If the Examiner has any questions, comments, or suggestions, the undersigned earnestly requests a telephone conference.

The Commissioner is authorized to charge any fees which may be required or credit any overpayment to deposit account number 50-3268/5589-04400.

Respectfully submitted,



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